State of Oregon
Department of
Environmental
Quality

**DEQ INSPECTION REPORT**
**AQ – Northwest Region**

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| ***County:*** Multnomah | |
| **Owens-Brockway Glass Container Inc.**<br>9710 N.E. Glass Plant Road<br>Portland, OR 97220 | ***Site Address (if different):*** |

| | | | |
|---|---|---|---|
| **Inspection Date:**<br>August 22, 2014 | **Reason for Inspection:**<br>(check one) | Regularly scheduled inspection | **X** |
| | | Complaint follow-up | |
| | | Other (specify) | |

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|---|---|---|---|---|---|
| **Permit Type:** | ACDP | | **Inspection Type:** | Full Compliance Evaluation (TV, ACDP - Synthetic Minor) | **X** |
| | | | | Partial Compliance Evaluation (TV, ACDP - Synthetic Minor) | |
| | Title V | **X** | | Regular Compliance Evaluation | |
| | | | | Announced | **X** |
| | | | | Unannounced | |

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| **DEQ Inspector(s):** | George Yun, Title-V Permitting<br>AQ, Northwest Region<br>(503) 229-6093 |

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| **Manager, Air Quality** | David Monro<br>NWR AQ Manager<br>(503) 229-5567 |

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| **Facility Representative(s):** | Beth Davis, Plant Engineer<br>(503) 251-9446 |

## Overview of Facility

The Owens-Brockway facility produces predominantly beer bottles (& some wine bottles) by recycling post-consumer glasses (i.e., cullet) along with other essential raw materials. Owens-Brockway operates two glass melting furnaces GM1 (A) and GM4 (D). There are two other inactive furnaces GM2 and GM3 (B & C); the B-furnace was shut down after 1978 and the C-furnace last operated for 90 days in 1990 before its retirement. Glass melting furnaces are the main source of air pollution at the Owens-Brockway facility. The glass melting furnace burns natural gas as their primary source of energy but also utilize electric-boost to supplement the energy demand. The A-furnace has dual side ports (i.e., south & north stacks) through which the combustion gases exhaust - alternating every 30 minutes. The D-furnace is an end port, single stack furnace. Continuous Opacity Monitors (COM) installed on each of the three exhaust stacks continuously monitor visible emissions from the glass melting furnaces A and D.

**Pre-inspection File Review**

- **SACCs & Annual Reports Reviewed**

| Report | Period | Date Received | Comments |
|---|---|---|---|
| Annual | Year 2012 | | Numerous opacity violations lead to DEQ enforcement actions and civil penalty assessment as noted below. |
| 2nd SACC | 2012 2nd half | | |
| 1st SACC | 2013 1st half | | |
| Annual | Year 2013 | | |
| 2nd SACC | 2013 2nd half | | In Compliance |
| 1st SACC | 2014 1st half | | In Compliance |

SACC: Semi-annual compliance certification

DEQ enforcement activities

| | | |
|---|---|---|
| 04/05/2012 | PE-POR-AQ-2012-0032 | Pre-enforcement Notice for opacity violations |
| 08/24/2012 | PE-POR-AQ-2012-0094 | Pre-enforcement Notice for opacity violations |
| 10/01/2012 | AQ/V-NWR-12-046 | DEQ Order & Civil Penalty $26,400 |
| 05/08/2013 | PE-POR-AQ-2013-0058 | Pre-enforcement Notice for opacity violations |
| 7/22/2013 | AQ/V-NWR-13-068 | The Civil Penalty of $26,400 in AQ/V-NWR-12-046 Reduced to $25,200 and combined with additional Penalty of $8,000 for a total amount of $33,200. |
| 5/16/2014 | WL-AQ-2014-0053 | Warning Letter for opacity violation on 6/26/2013 |

- **NESHAP Subpart "SSSSSS" (Non-)applicability**

Owens-Brockway does not intentionally add any of the following metal HAPs to their glass batch: arsenic, cadmium, chromium, lead, manganese, and nickel. In accordance with paragraph-c of §63.11448, NESHAP subpart 6S of part 63 does not apply to the Owens-Brockway facility. The metals that are naturally occurring as trace constituents or contaminants of other substances are not considered to be raw materials as defined in 40 CFR 63.11459. Cullet and materials that are recovered from the process stream and recycled/reused into the glass formulation are not considered to be raw materials for the purposes of determining the applicability of subpart 6S.

The Owens-Brockway facility is a minor source of hazardous air pollutants (HAPs). The estimated emissions of all metal HAPs total about 0.2 tons/yr with lead being the predominant percentage.

| CAS Number | Chemical Name | Estimate (tons/yr) |
|---|---|---|
| 7440382 | Arsenic | $1.04 \times 10^{-2}$ |
| 7440439 | Cadmium | $1.85 \times 10^{-2}$ |
| 7439965 | Manganese | $1.74 \times 10^{-3}$ |
| 7440020 | Nickel | $1.91 \times 10^{-3}$ |
| 7439921 | **Lead** | **0.19** |
| 0 | Hex Chromium | $1.97 \times 10^{-4}$ |
| | **Total** Aggregate metal HAPs: | Approx. **0.2** ton/year |

**Source Test Results**

The NOx emissions from both A and D furnaces were last tested in 2007, which verified the NOx emissions were below the average of all source tests conducted since 1983.

| | Furnace A | Furnace D |
|---|---|---|
| 2007 Test Result (lbs NOx/ton glass): | 2.2 | 2.9 |
| Average (lbs NOx/ton glass): | 4.7 | 3.7 |

Owens Brockway's current permit was issued on March 7, 2007 with a scheduled expiration date of 1/1/2012, but the permit remains effective until it is renewed. The current permit requires a single source test per permit term. Owens Brockway's permit renewal has been drafted but it has not been issued yet, and incidentally a good opportune time to redefine the source testing frequency to read every five years instead of "once per permit term". This eliminates any potential/unintentional delay in the 5-year testing frequency in the event the permit renewal process gets extended in the future.

**Facility Inspection**

Weather: Partly sunny skies with temperature in the high-60s ºF and no noticeable wind.

In 2013 Owens-Brockway formed "Glass to Glass" joint venture with eCullet Inc. and began outsourcing the glass-crushing and cullet-sorting operations. The EU2 in-house cullet crushers and processors are now inactive other than conveyor belt used to transport cullet from storage pile to the mixing bins.

The RMBH-2 batch baghouse is the main baghouse that abates particulate matter emissions from various materials handling process equipment such as silos, mixer, charger, conveyor, etc. The HEST-A baghouse injects ammonia to control excess tin-compounds released from the hot end surface treatment process by combining $NH_3$ with Sn to form solid particulate matter that can be collected by baghouse. The operator checks pressure drop every day. Bags on HEST-A and RMBH-2 are replaced when the pressure on the magnehelic pressure gauge drops to 2 inches or after 12 months of use, whichever occurs first. The pressure drop on HEST-A was reading about 3.5 inches of water. The pressure gauge on RMBH-2 is accessible via elevator shaft.

Both furnaces A and D were operating today producing approximately 10 tons of amber colored bottles. Furnace A was producing beer bottles, and Furnace D was producing both beer and wine bottles. I did not observe any fugitive dust emissions or detect any objectionable odor and/or unusual activities during my visit. Continuous Opacity Monitors indicate the visible emissions from A and D furnaces were averaging around 2 and 4% respectively.

Furnace A: using 71% cullet, ~2% opacity, Transformers 455 KW & 272 KW electric boost
Furnace D: using 71% cullet (same mixer feeds both furnace), 4% opacity, 214 & 304 KW boost

The EU7 Boiler was shut down for the season, which only operates during the winter months for (office) space heating.

**Permit Conditions Reviewed During Inspection**

| Cond No. | COMPLIANCE STATUS IN | OUT | OTHER | NOTES |
|---|---|---|---|---|
| 1 | | | X | Administrative condition |
| 2 | | | X | Administrative condition |
| 3 | | | X | Identifies Emissions Units and Pollution Control Devices |
| 4 | | | X | Requires action in the event of Air Pollution Alert, Warning, or Emergency Episode. No action item in this condition was triggered. |
| 5 | | | X | Monitoring and Recordkeeping required during Air-episode of Condition 4. None triggered. |
| 6 | X | | | Precaution required during material handling activities to prevent airborne PM. |
| 7 | X | | | Weekly visible emissions survey during period when the potential for fugitive visible (dust) emissions exists. Inspect material handling areas; take corrective actions if necessary; and keep records. |
| 8 | X | | | No off-site deposit of PM > 250µ |
| 9 | X | | | No nuisance. |
| 10 | X | | | Required to maintain a complaint log and record all complaints, inspections, and corrective actions taken. The permittee did not receive any nuisance type of complaints during the current permit term. DEQ has no record of any public complaints filed against this source for the past 2-years. |
| 11 | X | | | 20% opacity limit applicable to GM1 & GM4.<br>No excessive visible emission from both furnaces since the 6/26/2013 excursion on D-furnace. |
| 12 | X | | | The 0.1 gr/dscf grain loading limit applicable to GM1 & GM4. |
| 13 | X | | | Visible emissions reading by Continuous Opacity Monitor; daily calibration of COMs; Recordkeeping required. Performed as required. |
| 14 | X | | | The NSPS PM standard: 1 lbs PM/ton (0.5 g/Kg) glass produced. |
| 15 | X | | | <u>EPA Method 5 Source Test Results</u><br>GM1 Test Result: 0.6 lbs PM/ton<br>GM4 Test Result: 0.7 lbs PM/ton |
| 16 | X | | | Measure opacity by COM based on 6-minute average basis. Daily drift calibration performed as required. All records were available on demand. Quarterly opacity report submitted on time as required. |
| 17 | X | | | Semi-annual Opacity (EE) Reports submitted on time as required. No problems noted other than those resulted in DEQ enforcement action. |
| 18 | X | | | 20% opacity limit applicable to EU6 misc. fuel burning equipment, EU7 Boilers, GM2 & GM3. |

| Cond No. | COMPLIANCE STATUS IN | OUT | OTHER | NOTES |
|---|---|---|---|---|
| 19 | X | | | 20% opacity limit applicable to RMBH-1, **RMBH-2**, HEST-A, MRD-1baghouses. |
| 20 | X | | | The 0.2 gr/dscf grain loading limit applicable to EU7 Boilers:. |
| 21 | X | | | The 0.2 gr/dscf grain loading limit applicable to RMBH-2 &MRD-1baghouses. |
| 22 | X | | | The 0.1 gr/dscf grain loading limit applicable to RMBH-1 & HEST-A baghouses |
| 23 | X | | | Visible emissions survey conducted as specified in the permit.<br>Visible emissions survey waived for EU6 and EU7 fuel burning equipment burning natural gas only. |
| 24 | | | X | Visible emissions survey for GM2 & GM3: Furnaces shut down indefinitely. |
| 25 | | | X | Fuel oil sulfur content limits applicable to EU4 furnace and EU7 boilers: Oils not used. |
| 26 | | | X | Sulfur analysis/monitoring on each batch of fuel received, or obtain certificates from vendors for each batch: Oils not used. |
| 27 | | | X | *The 1000 ppm SO2 limit: The SOT-1 process no longer employed. Remove these conditions upon renewal.* |
| 28 | | | X | |
| 29 – 35 | X | | | Conditions 29 through 35 apply to Insignificant Activities: No direct monitoring or testing is required. The facility inspection suggests compliance with these requirements. |
| 36 | X | | | **Annual Plant Site Emission Limits**<br><br>The annual plant site emissions from Owens-Brockway were determined to be within the allowable PSEL specified in the permit. |
| The furnace emissions factors used to set the 1978 baseline emissions were based on limited data, which resulted in inflated PSEL in the previously issued permits. The PSEL are re-established in the draft permit renewal using emission factors based on actual emissions data that came directly from numerous source testing conducted on furnaces as they physically changed over 30 year period. This resulted in significant reduction in the PSEL. Recalculated emissions from the 1978 baseline year onward to the present still yield compliance with the (not yet official) reduced PSEL. | | | | |
| 37 | X | | | Identifies Process parameters, emission factors, empirical equations, etc. required to determine compliance with the PSEL: Performed as required. |
| 38 | | | X | Administrative condition |
| 39 | X | | | $PM_{10}$, $SO_2$, $NO_X$ EF verification (i.e., source testing) required for GM1 and GM4: |

| Cond No. | COMPLIANCE STATUS IN | OUT | OTHER | NOTES |
|---|---|---|---|---|
| | | | | **November 12 – 13, 2007 Test Results**<br><br>***$PM_{10}$*** **$SO_2$** **$NO_X$** **Unit**<br>**GM1:** *0.6* 3.1 2.2 lb/ton<br>**GM4:** *0.7* 2.4 2.9 lb/ton |
| 40 | | | X | Administrative condition that lists acceptable test methods in the event testing is required but no specific method has been identified. |
| 41 | X | | | General recordkeeping statement:<br>All required records are kept and were available for inspection. |
| 42 | | | X | General statement regarding missing records |
| 43 | X | | | Requires that records be retained for at least 5 years:<br>Retained as required |
| 44 | X | | | Requires submittal of semi-annual reports.<br>Submitted on-time and completed as required. |
| 45 | X | | | Requires submittal of annual reports.<br>Submitted on-time and completed as required. |
| 46 | X | | | Requires submittal of source test plans prior to testing, and source test results after testing.<br>Completed as required. |
| 47 | X | | | Specifies the contents of the semi-annual compliance certification reports.<br>Completed as required. |
| 48 | | | X | General statement regarding compliance certification. |
| 49 | X | | | Excess Emissions Reporting.<br>Opacity excursion reports were submitted as required. |
| 50 | X | | | Permit deviation reporting.<br>Opacity excursion reports were submitted as required. |
| 51 | X | | | Requires submittal of source test plans, as needed. |
| 52 | X | | | All reports certified by responsible official as required. |
| 53 | X | | | Reporting commenced in timely manner as required. |
| 54 | | | X | Addresses of DEQ and EPA |
| 55 | | | X | A list of Non-applicable State requirements |
| 56 | | | X | A list of Non-applicable Federal requirements |
| G1 – G27 | X | | | General Conditions |

**Compliance Status of Facility**

Check one of the following:

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|---|---|
| **X** | Facility is in compliance with permit conditions described above. |
| | Facility is not in compliance with one or more of permit conditions described above (provide additional detail below). |

Is the facility under a compliance schedule to correct previous compliance problem(s)? Check one of the following:

| | |
|---|---|
| **X** | Facility is not under a compliance schedule to correct previous noncompliance. |
| | Facility is on schedule to correct previous noncompliance. |
| | Facility is not on schedule to correct previous noncompliance (provide additional detail below). |

Is the facility under a compliance schedule to comply with future requirement(s)? Check one of the following:

| | |
|---|---|
| **X** | Facility is not under a compliance schedule for future requirement(s). |
| | Facility is on schedule to meet future requirement(s). |
| | Facility is not on schedule to meet future requirement(s) (provide additional detail below). |